

Appl. No. 10/581,233
Amdt. Dated: 10/15/2007
Reply to Office Action of 05/15/2007

Attorney Docket No. _ABAL5001

IN THE DRAWINGS

Figure 1 is amended.

New Figure 2 is added.

No new matter has been added.

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REMARKS

Reconsideration and allowance in view of the foregoing amendments and the following remarks are respectfully requested.

Amendments to the Specification

Paragraphs [0001] and [0005] of the Specification have been amended to clarify the description of the invention. Support for these changes can be found, for example, in original Claim 1 as filed. Other minor changes have been made throughout the Specification to correct spelling and to convert British English to United States English spellings.

Paragraph [0003] has been amended to insert the prefix "dis" before the word "advantage." This amendment corrects an obvious error. One skilled in the art would recognize not only this error but also this appropriate correction. The second sentence of paragraph [0003] explains how half the stone must be cut away in the traditional brilliant cut. Paragraph [0004] describes how the new invention minimizes this loss. One skilled in the art would realize that loss of stone is a disadvantage and not an advantage.

Paragraph [0005] has been amended to further clarify the invention. Support for this amendment can be found, for example, in Claims 1-9 as originally filed.

Paragraphs [0014], [0015] , and [0018] have been amended to reflect the existence of the new drawing, Figure 2.

Amendments to the Claims

Upon entry of the amendment, claims 1-10 will be pending in the present application. Claims 1-4, and 6-10 (formerly 5-9) have been amended to further clarify the invention. Support for amended Claim 1 can be found in paragraph [0022] and in Figure 1 of the specification as originally filed. Amended Claim 1 conforms to the originally filed drawing in Figure 1. Claim 7 (formerly Claim 6) has been withdrawn from consideration. New Claim 5 has added. Support for this claim can be found, for

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example, in original Claim 2. No new matter has been added. Applicant respectfully submits that the pending claims are presently allowable.

Applicant also submits the Declaration of Alan Nechemias, who has examined a diamond ("Abittan diamond") cut according to Applicant's invention, in support of Applicant's argument that the invention as set forth in new claims 1-10 was not obvious in view of the prior art cited by the Examiner.

Amendments to the Drawings

In the May 15, 2007, Office Action, the Examiner objected to the drawings under 37 CFR 1.83(a) as failing to show every feature of the invention as specified in the claims. In particular, the Examiner found that different numbers of facets per unit of surface area of the polished gemstone as well as the facets extending under different angles were missing from the drawings. The drawings have been amended in response to Examiner's objections. Figures 1 and 2 show a different number of facets per mm². Figure 2 shows facets extending under different angles. For example, facets 3 and 6 extend under a different, and sharper, angle than do facets 7 and 8. Support for these amendments can be found in Figure 1, paragraph [0006], and Claims 1-4 as originally filed. No new matter has been added. Applicant believes that these amendments to the drawings satisfy the requirements of 37 CFR 1.83(a).

Objections to the Claims

Claims 2 and 4 are objected to under 37 CFR 1.75(c) as being of improper form for failing to further limit the subject matter of a previous claim. The Examiner states that claim 2 merely attempts to claim differing numbers of facets for the polished stone instead of further limiting the structure of the stone. Applicant respectfully traverses this objection. The number of facets per square millimeter is a structural feature. Claim 2 does not claim a different number of facets for the polished stone. Rather, claim 2 claims a different number of facets *per square millimeter*, which is a structural feature. Claim 2 depends from independent claim 1. Claim 1 describes a polished surface having the

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structural feature of 4-25 facets per square millimeter. Claim 2 further limits claim 1 by requiring that the structural feature be different, namely that the surface area of the stone comprise 4-15 facets per square millimeter of surface area. The range of 4-15 facets per square millimeter in the dependent claim is contained within the range of 4-25 facets per square millimeter in the independent claim. The dependent claim is more limited in that it does not contain the range of 16-25 facets per square millimeter. Claim 1 covers a wider range than claim 2, thus making claim 2 more narrow, or more limited than claim 1. Claim 2, therefore does further limit the subject matter of claim 1.

With regard to the Examiner's objection under 37 CFR 1.75(c) to claim 4, the same rationale applies. The angle between adjacent facets is a structural feature. Claim 3 describes the structural feature of the angle between adjacent facets being between 0.25 degrees and 5 degrees. Claim 4 further limits claim 3 by limiting the structural feature of the angle between adjacent facets to a range between 0.25 degrees and 1 degree. The examiner says that "stating that the angle between adjacent facets is between .25-1 contradicts ... that the angle between facets is between .1-5)." (May 15, 2007, Office Action, p. 3). Applicant disagrees. The range of angles between 0.25 degrees and 1 degree from claim 4 is within the range of angles between 0.25 degrees and 5 degrees from claim 3. Claim 4 is thus more narrow than claim 3 because the range of possible angles is more limited. Claim 4 thus further limits the subject matter of claim 3 and does not contradict claim 3.

Rejections under 35 U.S.C. 103(a)

Claims 1-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Schenck, US-D35,937. With regard to claims 1-4, Schenck discloses a cut gemstone having a surface made up of five-sided figures, four-sided figures, and triangular figures arranged in a symmetrical pattern. Schenck's stone includes facets of regular shape such as the equilateral triangle in Schenck Figure 1, element c. All of the facets in Schenck's stone are symmetrical except those on the outer edge.

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Applicants stones are composed of a majority of asymmetric facets not arranged in a symmetric pattern

Amended claim 1 describes a gemstone having a surface at least part of which is polished, characterized in that the polished surface comprises a plurality of adjacent facets. The claim further describes that the facets are present at a density of 4-25 facets per mm². The majority of the facets are asymmetrically shaped and the plurality of facets are not arranged in a symmetrical pattern. The gemstone of claim 1 is thus different from the gemstone of Schenck.

Applicant also submits the declaration of Alan Nechemias, a Certified Gemologist in the American Gem Society with thirty years experience in the field. The facts set forth in his declaration establish the following: (1) the facets on the Abittan diamond are tiny and asymmetrically shaped; (2) nearly all the facets on the D35,937 (Schenck) stone are symmetrical; (3) the goal in traditional diamond cutting is to be more symmetric, not less as in the "Abittan diamond"; and (4) gemstones cut according to the invention are unusual, "I have never seen a diamond cut in the manner of the Abittan diamond." (Nechemias Declaration p. 2, paragraph 9).

Examiner states that it would have been an obvious matter of design choice to modify the polished surface of Schenck to have the claimed number and angle of facets. Applicant submits that since modified claim 1 requires a majority of asymmetrically shaped facets, simply changing the number of Schenck's majority symmetrically shaped facets and their angles could not produce the invention of claim 1. Furthermore, modified claim 1 describes an asymmetrical gemstone. The facets of Schenck's stone are arranged in a symmetrical pattern. The prior art and traditional cutting teach away from asymmetry. For these reasons, Applicant maintains that it would not have been obvious to modify the design of Schenck to arrive at the present invention.

Conservation of carat weight is an unexpected improvement over the prior art

Examiner states on page 4 of the Office Action that "applicant has not disclosed that such a particular orientation [of adjacent facets] creates any unexpected result." He

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further states that "the invention would perform equally well as the invention disclosed by Schenck."

In addition to describing a unique pattern and shape of facets, Applicant has disclosed that gemstones having facets with a small surface area, cut as described in the application, can be produced with a minimal loss of material during polishing.

Applicant also submits the remarks of Declarant Nechemias. The facts set forth in his declaration establish that, "Because of the way the Abittan diamond is cut, there is minimal weight loss, thus allowing the use of more stone than expected given the quality of the stone." (Nechemias Declaration p. 2, paragraph 12).

This conservation of carat weight is an improvement over the prior art wherein typically half of a gemstone could be lost to waste during cutting (see paragraph [0003] of the Specification). The prior art and traditional cutting teach away from minimizing carat weight loss. Applicant asserts that the gemstones of the present invention wherein the carat weight loss is minimized would not have been obvious given the prior art.

Gemstones of the present invention have unexpected sparkle for their cut grade

Stones cut as disclosed in the present application, having small facets extending under an angle of 0.1-5.0 degrees between facets, reveal not only their natural color but also a high degree of brilliance. In addition, the visibility of impurities, inclusions, and cracks or other defects present in the interior of the stone is largely reduced. Applicant has explained these effects by the observation that the surface of the stone of this invention resembles the surface of a honeycomb structure. Light impinging the surface of two adjacent facets is reflected in different directions to produce a sparkling effect. As the light is reflected by a large number of facets, and as adjacent facets extend under an angle with respect to each other, the light is reflected in a vast number of widely varying directions. Besides this, the light has been found to reflect not only from the planes of the facets but also at the edges, as a consequence of which the gemstone shows a sparkling effect in the light. This reflection of light by a large number of small facets in a large number of different directions has the surprising result of increasing brilliance, even in

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opaque stones. The light is exclusively reflected by the facets on the outer surface of the stone, and not dispersed or refracted back by the internal part of the stone, which is traditionally the case, with for example brilliant cuts. This is an unexpected result of polishing the stone in accordance with the present invention.

As he stated in his Declaration, Nechemias "found the Abittan diamond to have a surprising number of facets for its size and a lot of scintillation. The stone had a remarkable amount of sparkle for its cut grade, which made it more aesthetically attractive than would be expected." (Nechemias Declaration, p. 2, paragraph 6). Nechemias further states, "In the Abittan diamond, the sparkle comes from having many tiny facets reflecting light from the surface and not from the interior of the stone. Thus, it is my opinion that although it is well known to change the size, shape, and angles of facets to affect the aesthetics of gemstones, cutting such tiny facets and at the angles displayed in Abittan's stone, is contrary to convention, provides unexpected sparkle and preserves more carat weight than one skilled in the art would foresee, given the quality of the stone." (Nechemias Declaration, p. 3, paragraph 13).

Nechemias' Declaration supports Applicant's contention that it is nonobvious to cut gemstones according to the present invention wherein the visibility of impurities or imperfections in the stone may be largely reduced. Gemstones so cut have increased economic value for their cut grade. The attractiveness of the stone is virtually independent of the presence or absence of imperfections in the stone.

Conclusion

The Examiner has indicated that it is extremely old and well-known to change the size, shape, orientation, and angles for facets in gemstones to produce improved properties of brilliance, radiance, etc. The stones of the present invention exhibit a novel way of creating attractive gemstones, one where surprising results are produced with minimal loss of gem material during polishing. The goal of traditional gem cutting, to make a stone more transparent to light, has the disadvantage of revealing flaws and impurities within the stone. It also results in the loss of significant carat weight since the

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majority of the stone is cut away to achieve symmetrical facets and symmetry of the stone overall, characteristics previously thought to be necessary to achieve brilliance. The present invention provides for the use of stones containing impurities. More and smaller facets give the stones of the present invention higher brilliance and more sparkle without revealing impurities which may be inside. The facets of the stones of Applicant's invention are contrary to the prior art and not symmetrical. Furthermore Applicant's stone has no overall symmetry. The inventor has found that the asymmetry of the facets contributes to the brilliance and sparkling of the stone in the light.

Examiner cites no references that teach Applicant's invention and no references which teach increased brilliance and sparkle via the use of small, mostly asymmetrically-shaped facets, extending under an angle of 0.1-5.0 degrees between facets. Furthermore, Examiner cites no references which teach wasting less gem and revealing less impurities in accordance with the present invention. Applicant believes that his invention is both new and non-obvious.

All objections and rejections having been addressed, it is respectfully submitted that the present application is now in condition for allowance and a Notice to that effect is earnestly solicited. Please charge our Deposit Account #15-0490 for any additional fee.

Respectfully submitted,



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